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#4

SEQUENCE LISTING

<110> RHODES, Simon J.
BRIDWELL, Jeanne L.
MEIER, Bradley C.
PARKER, Gretchen E.
PRICE, Jeffrey R.
SHOWALTER, Aaron D.
SLOOP, Kyle W.

<120> GENERATION OF DIAGNOSTIC TOOLS TO ASSAY THE HUMAN
LHX3/P-LIM/LIM-3 FACTOR

<130> 053884-5003

<140> 09/932,367
<141> 2001-08-17

<150> PCT/US00/04424
<151> 2000-02-22

<150> US 60/121,110
<151> 1999-02-22

<160> 113

<170> PatentIn Ver. 2.1

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 His Ser Lys Cys Leu Lys Cys Ser Asp Cys Gln Ser Gln Leu Ala Asp
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 Phe Arg Asn Met Lys Arg Ser Arg Gly Thr Ser Lys Ser Asp Lys Asp
 225 230 235 240

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 Asp Glu Pro Pro Met Ser Asp Leu Gly His Ser Asn Gly Ile Tyr Ser
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 Ser Leu Ser Glu Ser Ser Pro Ala Leu Ser Arg Gln Gly Gly Asn His
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<213> Homo sapiens

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gcagctgtgc gtcccccaaa cacaaggct ggcctgtgtg taagtcaaag tcaactcccg 2100
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<210> 12

<211> 402

<212> PRT

<213> Homo sapiens

<400> 12

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Asp Leu Leu Leu Ala Leu Leu Ala Arg Arg Ala Asp Leu Arg Arg Glu
20 25 30

Ile Pro Leu Cys Ala Gly Cys Asp Gln His Ile Leu Asp Arg Phe Ile
35 40 45

Leu Lys Ala Leu Asp Arg His Trp His Ser Lys Cys Leu Lys Cys Ser
50 55 60

Asp Cys His Thr Pro Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser
65 70 75 80

Val	Tyr	Cys	Lys	Asp	Asp	Phe	Phe	Lys	Arg	Phe	Gly	Thr	Lys	Cys	Ala
				85				90					95		
Ala	Cys	Gln	Leu	Gly	Ile	Pro	Pro	Thr	Gln	Val	Val	Arg	Arg	Ala	Gln
				100				105				110			
Asp	Phe	Val	Tyr	His	Leu	His	Cys	Phe	Ala	Cys	Val	Val	Cys	Lys	Arg
				115			120				125				
Gln	Leu	Ala	Thr	Gly	Asp	Glu	Phe	Tyr	Leu	Met	Glu	Asp	Ser	Arg	Leu
				130		135				140					
Val	Cys	Lys	Ala	Asp	Tyr	Glu	Thr	Ala	Lys	Gln	Arg	Glu	Ala	Glu	Ala
				145		150			155			160			
Thr	Ala	Lys	Arg	Pro	Arg	Thr	Thr	Ile	Thr	Ala	Lys	Gln	Leu	Glu	Thr
				165				170			175				
Leu	Lys	Ser	Ala	Tyr	Asn	Thr	Ser	Pro	Lys	Pro	Ala	Arg	His	Val	Arg
				180				185				190			
Glu	Gln	Leu	Ser	Ser	Glu	Thr	Gly	Leu	Asp	Met	Arg	Val	Val	Gln	Val
				195			200				205				
Trp	Phe	Gln	Asn	Arg	Arg	Ala	Lys	Glu	Lys	Arg	Leu	Lys	Lys	Asp	Ala
				210		215				220					
Gly	Arg	Gln	Arg	Trp	Gly	Gln	Tyr	Phe	Arg	Asn	Met	Lys	Arg	Ser	Arg
				225		230			235			240			
Gly	Gly	Ser	Lys	Ser	Asp	Lys	Asp	Ser	Val	Gln	Glu	Gly	Gln	Asp	Ser
				245				250			255				
Asp	Ala	Glu	Val	Ser	Phe	Pro	Asp	Glu	Pro	Ser	Leu	Ala	Glu	Met	Gly
				260			265				270				
Pro	Ala	Asn	Gly	Leu	Tyr	Gly	Ser	Leu	Gly	Glu	Pro	Thr	Gln	Ala	Leu
				275			280				285				
Gly	Arg	Pro	Ser	Gly	Ala	Leu	Gly	Asn	Phe	Ser	Leu	Glu	His	Gly	Gly
				290		295			300						
Leu	Ala	Gly	Pro	Glu	Gln	Tyr	Arg	Glu	Leu	Arg	Pro	Gly	Ser	Pro	Tyr
				305		310			315			320			
Gly	Val	Pro	Pro	Ser	Pro	Ala	Ala	Pro	Gln	Ser	Leu	Pro	Gly	Pro	Gln
				325				330				335			
Pro	Leu	Leu	Ser	Ser	Leu	Val	Tyr	Pro	Asp	Thr	Ser	Leu	Gly	Leu	Val
				340			345				350				
Pro	Ser	Gly	Ala	Pro	Gly	Gly	Pro	Pro	Pro	Met	Arg	Val	Leu	Ala	Gly
				355			360				365				
Asn	Gly	Pro	Ser	Ser	Asp	Leu	Ser	Thr	Gly	Ser	Ser	Gly	Gly	Tyr	Pro
				370			375				380				
Asp	Phe	Pro	Ala	Ser	Pro	Ala	Ser	Trp	Leu	Asp	Glu	Val	Asp	His	Ala
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Gln Phe

<210> 13
<211> 1658
<212> DNA
<213> Sus scrofa

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cggtcggtgt gcaaggccga ctacgagacc gccaaggcagc gagaggccga ggccacggcc 480
aaggccgcg gcaacgacat cacggccaag cagctggaga cgctgaagag cgccataaac 540
acgtcgccca agcccgccg ccacgtgcgc gacgactct cctccgagac cggcctggac 600
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gacggccggcc ggcagcgtg gggccagttac ttctgttaaca tgaagcgcgc cccgcgtggc 720
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<210> 14
<211> 401
<212> PRT
<213> Sus scrofa

<400> 14
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Pro Ala Ala Ala Ala Val Cys Thr Leu Pro Gly Thr Arg Glu Ile Pro
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Leu Cys Ala Gly Cys Asp Gln His Ile Leu Asp Arg Phe Ile Leu Lys
35 40 45

Ala Leu Asp Arg His Trp His Ser Lys Cys Leu Lys Cys Ser Asp Cys
50 55 60

His Thr Pro Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser Leu Tyr
65 70 75 80

Cys Lys Asp Asp Phe Phe Lys Arg Phe Gly Thr Lys Cys Ala Ala Cys
 85 90 95
 Gln Leu Gly Ile Pro Pro Thr Gln Val Val Arg Arg Ala Gln Asp Phe
 100 105 110
 Val Tyr His Leu His Cys Phe Ala Cys Val Val Cys Lys Arg Gln Leu
 115 120 125
 Ala Thr Gly Asp Glu Phe Tyr Leu Met Glu Asp Ser Arg Leu Val Cys
 130 135 140
 Lys Ala Asp Tyr Glu Thr Ala Lys Gln Arg Glu Ala Glu Ala Thr Ala
 145 150 155 160
 Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr Leu Lys
 165 170 175
 Ser Ala Tyr Asn Thr Ser Pro Lys Pro Ala Arg His Val Arg Glu Gln
 180 185 190
 Leu Ser Ser Glu Thr Gly Leu Asp Met Arg Val Val Gln Val Trp Phe
 195 200 205
 Gln Asn Arg Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala Gly Arg
 210 215 220
 Gln Arg Trp Gly Gln Tyr Phe Arg Asn Met Lys Arg Ala Arg Gly Gly
 225 230 235 240
 Ser Lys Ser Asp Lys Asp Ser Val Gln Glu Glu Gly Gln Asp Ser Asp
 245 250 255
 Ala Glu Val Ser Phe Thr Asp Glu Pro Ser Met Ala Glu Met Gly Pro
 260 265 270
 Ala Asn Gly Leu Tyr Gly Leu Gly Glu Pro Ala Pro Ala Leu Gly
 275 280 285
 Arg Pro Ser Gly Ala Pro Gly Ser Phe Pro Leu Glu His Gly Gly Leu
 290 295 300
 Ala Gly Pro Glu Gln Tyr Gly Glu Leu Arg Pro Ser Ser Pro Tyr Gly
 305 310 315 320
 Val Pro Ser Ser Pro Ala Ala Leu Gln Ser Leu Pro Gly Pro Gln Pro
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 Ala Gly Pro Pro Gly Gly Pro Pro Pro Met Arg Val Leu Ala Gly Asn
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<210> 15
<211> 1664
<212> DNA
<213> Sus scrofa

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ccagagcagc acagccctca gactggaaga tgcttaatt tttaaaaattt aaaaataata 1620
cgaactgtgc ttccatttcc cagcttcctc tgcttagttc tgcc 1664

<210> 16
<211> 403
<212> PRT
<213> Sus scrofa

<400> 16
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Asp Leu Leu Leu Ala Leu Leu Ala Arg Arg Glu Asp Leu Arg Arg Glu
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Ile Pro Leu Cys Ala Gly Cys Asp Gln His Ile Leu Asp Arg Phe Ile
35 40 45

Leu Lys Ala Leu Asp Arg His Trp His Ser Lys Cys Leu Lys Cys Ser
50 55 60

Asp Cys His Thr Pro Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser
65 70 75 80

Leu Tyr Cys Lys Asp Asp Phe Phe Lys Arg Phe Gly Thr Lys Cys Ala

85	90	95
Ala Cys Gln Leu Gly Ile Pro Pro Thr Gln Val Val Arg Arg Ala Gln		
100	105	110
Asp Phe Val Tyr His Leu His Cys Phe Ala Cys Val Val Cys Lys Arg		
115	120	125
Gln Leu Ala Thr Gly Asp Glu Phe Tyr Leu Met Glu Asp Ser Arg Leu		
130	135	140
Val Cys Lys Ala Asp Tyr Glu Thr Ala Lys Gln Arg Glu Ala Glu Ala		
145	150	155
160		
Thr Ala Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr		
165	170	175
Leu Lys Ser Ala Tyr Asn Thr Ser Pro Lys Pro Ala Arg His Val Arg		
180	185	190
Glu Gln Leu Ser Ser Glu Thr Gly Leu Asp Met Arg Val Val Gln Val		
195	200	205
Trp Phe Gln Asn Arg Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala		
210	215	220
Gly Arg Gln Arg Trp Gly Gln Tyr Phe Arg Asn Met Lys Arg Ala Arg		
225	230	235
240		
Gly Gly Ser Lys Ser Asp Lys Asp Ser Val Gln Glu Glu Gly Gln Asp		
245	250	255
Ser Asp Ala Glu Val Ser Phe Thr Asp Glu Pro Ser Met Ala Glu Met		
260	265	270
Gly Pro Ala Asn Gly Leu Tyr Gly Gly Leu Gly Glu Pro Ala Pro Ala		
275	280	285
Leu Gly Arg Pro Ser Gly Ala Pro Gly Ser Phe Pro Leu Glu His Gly		
290	295	300
Gly Leu Ala Gly Pro Glu Gln Tyr Gly Glu Leu Arg Pro Ser Ser Pro		
305	310	315
320		
Tyr Gly Val Pro Ser Ser Pro Ala Ala Leu Gln Ser Leu Pro Gly Pro		
325	330	335
Gln Pro Leu Leu Ser Ser Leu Val Tyr Pro Glu Ala Gly Leu Gly Leu		
340	345	350
Val Pro Ala Gly Pro Pro Gly Gly Pro Pro Pro Met Arg Val Leu Ala		
355	360	365
Gly Asn Gly Pro Ser Ser Asp Leu Ser Thr Gly Ser Ser Gly Gly Tyr		
370	375	380
Pro Asp Phe Pro Ala Ser Pro Ala Ser Trp Leu Asp Glu Val Asp His		
385	390	395
400		
Ala Gln Phe		

<210> 17
 <400> 17
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<210> 18
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<210> 19
 <211> 440
 <212> PRT
 <213> Drosophila melanogaster

<400> 19

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 20 25 30

Glu Phe Leu Leu Ser Thr Ile Pro Lys Cys Gly Gly Cys His Glu Leu
 35 40 45

Ile Leu Asp Arg Phe Ile Leu Lys Val Leu Glu Arg Thr Trp His Ala
 50 55 60

Lys Cys Leu Gln Cys Ser Glu Cys His Gly Gln Leu Asn Asp Lys Cys
 65 70 75 80

Phe Ala Arg Asn Gly Gln Leu Phe Cys Lys Glu Asp Phe Phe Lys Arg
 85 90 95

Tyr Gly Thr Lys Cys Ser Ala Cys Asp Met Gly Ile Pro Pro Thr Gln
 100 105 110

Val Val Arg Arg Ala Gln Asp Asn Val Tyr His Leu Gln Cys Phe Leu
 115 120 125

Cys Ala Met Cys Ser Arg Thr Leu Asn Thr Gly Asp Glu Phe Tyr Leu
 130 135 140

Met Glu Asp Arg Lys Leu Ile Cys Lys Arg Asp Tyr Glu Glu Ala Lys
 145 150 155 160

Ala Lys Gly Leu Tyr Leu Asp Gly Ser Leu Asp Gly Asp Gln Pro Asn
 165 170 175

Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr Leu Lys
 180 185 190

Thr Ala Tyr Asn Asn Ser Pro Lys Pro Ala Arg His Val Arg Glu Gln
 195 200 205

Leu Ser Gln Asp Thr Gly Leu Asp Met Arg Val Val Gln Val Trp Phe
 210 215 220

Gln Asn Arg Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala Gly Arg

225	230	235	240
Thr Arg Trp Ser Gln Tyr Phe Arg Ser Met Lys Gly Asn Cys Ser Pro			
245	250	255	
Arg Thr Asp Lys Phe Leu Asp Lys Asp Glu Leu Lys Val Asp Tyr Asp			
260	265	270	
Ser Phe Ser His His Asp Leu Ser Asn Asp Ser Tyr Ser Thr Val Asn			
275	280	285	
Leu Gly Leu Asp Glu Gly Ala Ser Pro His Ser Ile Arg Gly Ser Tyr			
290	295	300	
Met His Gly Ser Ser Ser Pro Ser Gln Tyr Pro Pro Ser Ser Arg Ser			
305	310	315	320
Pro Pro Pro Val Gl: Gln Gly His Thr Phe Gly Ser Tyr Pro Asp Asn			
325	330	335	
Ile Val Tyr Thr Asn Ile Asp Gln Ala Val Gly Ser Ser Leu His Ala			
340	345	350	
Ser Lys Ala His His Arg Leu His Ser Ser Asn Asn Val Ser Asp Leu			
355	360	365	
Ser Asn Asp Ser Ser Pro Asp Gln Gly Tyr Pro Asp Phe Pro Pro Ser			
370	375	380	
Pro Asp Ser Trp Leu Gly Asp Ser Gly Ser Thr Asn Thr Thr Ser Ala			
385	390	395	400
Asn Asn Asn Ala Asn Asn Asn Ser Ser Arg Ser His Asn Asn Asn Asn			
405	410	415	
Ser Ser Gly Gly Ser Gly Gly Val Ser Val Ser Thr Ala Pro Asn			
420	425	430	
Pro Ser Ala Pro Gly Val His Tyr			
435	440		

<210> 20
<211> 367
<212> PRT
<213> Mus musculus

<400> 20
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Lys Cys Ala Asp Cys Gln Met Gln Leu Ala Asp Arg Cys Phe Ser Arg
35 40 45

Ala Gly Ser Val Tyr Cys Lys Glu Asp Phe Phe Lys Arg Phe Gly Thr
50 55 60

Lys Cys Thr Ala Cys Gln Gln Gly Ile Pro Pro Thr Gln Val Val Arg

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Cys Asn Arg Gln Leu Ala Thr Gly Asp Glu Phe Tyr Leu Met Glu Asp			
100	105	110	
Gly Arg Leu Val Cys Lys Glu Asp Tyr Glu Thr Ala Lys Gln Asn Asp			
115	120	125	
Asp Ser Glu Ala Gly Ala Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys			
130	135	140	
Gln Leu Glu Thr Leu Lys Asn Ala Tyr Lys Asn Ser Pro Lys Pro Ala			
145	150	155	160
Arg His Val Arg Glu Gln Leu Ser Ser Glu Thr Gly Leu Asp Met Arg			
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Val Val Gln Val Trp Phe Gln Asn Arg Arg Ala Lys Glu Lys Arg Leu			
180	185	190	
Lys Lys Asp Ala Gly Arg His Arg Trp Gly Gln Phe Tyr Lys Ser Val			
195	200	205	
Lys Arg Ser Arg Gly Gly Ser Lys Gln Glu Lys Glu Ser Ser Ala Glu			
210	215	220	
Asp Cys Gly Val Ser Asp Ser Glu Leu Ser Phe Arg Glu Asp Gln Ile			
225	230	235	240
Leu Ser Glu Leu Gly His Thr Asn Arg Ile Tyr Gly Asn Val Gly Asp			
245	250	255	
Val Thr Gly Gly Gln Leu Met Asn Gly Ser Phe Ser Met Asp Gly Thr			
260	265	270	
Gly Gln Ser Tyr Gln Asp Leu Arg Asp Gly Ser Pro Tyr Gly Ile Pro			
275	280	285	
Gln Ser Pro Ser Ser Ile Ser Ser Leu Pro Ser His Ala Pro Leu Leu			
290	295	300	
Asn Gly Leu Asp Tyr Thr Val Asp Ser Asn Leu Gly Ile Ile Ala His			
305	310	315	320
Ala Gly Gln Gly Val Ser Gln Thr Leu Arg Ala Met Ala Gly Gly Pro			
325	330	335	
Thr Ser Asp Leu Ser Thr Gly Ser Ser Val Gly Tyr Pro Asp Phe Pro			
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Thr Ser Pro Ala Ser Trp Leu Asp Glu Met Asp His Pro Pro Phe			
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<210> 21
<211> 402
<212> PRT
<213> Mus musculus

<400> 21
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 35 40 45
 Leu Lys Ala Leu Asp Arg His Trp His Ser Lys Cys Leu Lys Cys Ser
 50 55 60
 Asp Cys His Val Pro Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser
 65 70 75 80
 Val Tyr Cys Lys Asp Asp Phe Phe Lys Arg Phe Gly Thr Lys Cys Ala
 85 90 95
 Ala Cys Gln Leu Gly Ile Pro Pro Thr Gln Val Val Arg Arg Ala Gln
 100 105 110
 Asp Phe Val Tyr His Leu His Cys Phe Ala Cys Val Val Cys Lys Arg
 115 120 125
 Gln Leu Ala Thr Gly Asp Glu Phe Tyr Leu Met Glu Asp Ser Arg Leu
 130 135 140
 Val Cys Lys Ala Asp Tyr Glu Thr Ala Lys Gln Arg Glu Ala Glu Ala
 145 150 155 160
 Thr Ala Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr
 165 170 175
 Leu Lys Ser Ala Tyr Asn Thr Ser Pro Lys Pro Ala Arg His Val Arg
 180 185 190
 Glu Gln Leu Ser Ser Glu Thr Gly Leu Asp Met Arg Val Val Gln Val
 195 200 205
 Trp Phe Gln Asn Arg Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala
 210 215 220
 Gly Arg Gln Arg Trp Gly Gln Tyr Phe Arg Lys Met Lys Arg Ser Arg
 225 230 235 240
 Gly Ser Ser Lys Ser Asp Lys Asp Ser Ile Gln Glu Gly Gln Asp Ser
 245 250 255
 Asp Ala Glu Val Ser Phe Thr Asp Glu Pro Ser Met Ala Asp Met Gly
 260 265 270
 Pro Ala Asn Gly Leu Tyr Ser Ser Leu Gly Glu Pro Ala Pro Ala Leu
 275 280 285
 Gly Arg Pro Val Gly Gly Leu Gly Ser Phe Thr Leu Asp His Gly Gly
 290 295 300
 Leu Thr Gly Pro Glu Gln Tyr Arg Glu Leu Arg Pro Gly Ser Pro Tyr
 305 310 315 320

Gly Ile Pro Pro Ser Pro Ala Ala Pro Gln Ser Leu Pro Gly Pro Gln
 325 330 335
 Pro Leu Leu Ser Ser Leu Val Tyr Pro Asp Thr Asn Leu Ser Leu Val
 340 345 350
 Pro Ser Gly Pro Pro Gly Gly Pro Pro Pro Met Arg Val Leu Ala Gly
 355 360 365
 Asn Gly Pro Ser Ser Asp Leu Ser Thr Glu Ser Ser Ser Gly Tyr Pro
 370 375 380
 Asp Phe Pro Ala Ser Pro Ala Ser Trp Leu Asp Glu Val Asp His Ala
 385 390 395 400
 Gln Phe

<210> 22
 <211> 8867
 <212> DNA
 <213> Homo sapiens

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 <222> (3725)..(3725)
 <223> n=A,C,T,G

<220>
 <221> misc_feature
 <222> (8848)..(8848)
 <223> n=A,C,T,G

<400> 22

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<210> 27

<211> 2070

<212> DNA

<213> Homo sapiens

<400> 27

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<211> 26

<212> PRT

<213> Homo sapiens

<400> 28

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Ala Ala Val Cys Thr Leu Gly Gly Thr Arg
20 25

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<210> 29
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<400> 29
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1 5 10 15

Asp Leu Leu Leu Ala Leu Leu Ala Arg Arg Ala Asp Leu Arg Arg
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<400> 31
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1 5 10 15

Pro Ala Ala Ala Ala Val Cys Thr Leu Pro Gly Thr Arg
20 25

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<210> 33
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<400> 33
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1 5 10 15

Asp Leu Leu Leu Ala Leu Leu Ala Arg Arg Glu Asp Leu Arg Arg
20 25 30

<210> 34
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<210> 36
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<210> 39
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<220>
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<400> 39
cccggccccggg gagtcggcgagc gaggc 25

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<210> 69		
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<211> 27		
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<220>		
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<223> Description of Artificial Sequence:PCR primer	
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<210> 96
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<220>
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<400> 96
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<400> 97
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<210> 98
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<210> 99
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<213> Artificial Sequence

<220>
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<400> 99
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<210> 100
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<220>
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<210> 101
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<220>
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<400> 101
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28

<210> 102
<211> 192
<212> DNA
<213> Homo sapiens

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cacctttccccca gggagaagct ttccccaatc cccaggtctc tagatcattc tgttctcgag 120
tatcctgtgg aggaggcaaa aatgcctggc gcccttctc tccaaagctca attctctaag 180
cccttcaggg tc 192

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<220>
<223> Description of Artificial Sequence:PCR primer

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21

<210> 104
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<220>
<223> Description of Artificial Sequence:PCR primer

<400> 104
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21

<210> 105
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<220>
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<400> 105
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20

<210> 106		
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<210> 111
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<223> Description of Artificial Sequence:PCR primer

<400> 111
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<210> 112
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<400> 112
cgctgactga gcctctgctt 20

<210> 113
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<220>
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<400> 113
cctcgtgtga ggtgcagggt 20
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